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Abstract

Some people are endowed with advantages which allcw them to make full use of educaticnal opportunities. Others, for one reason or another, become high-risk students with limited educational possibilities. Almost all students at some period of time are appropriately identified in the "high risk" category. A more effective method than those presently used (Head Start, Job Corps) in aiding these high risk students, may be apprcached by tctal community involvement and through the use of operaticnal evaluation and instructicn by computerized assistance. High risk students are faced primarily with the chcre of gaining a required part of the desirable attributes related to more acceptable groups. Approaches to develcping life styles are given. The ability to quantify any informaticn is highly desirable from a deterministic point of view. For the high risk student, kncwing all the emoticnal forces that are involved in his life may be necessary for basic survival. This need can be met with computers. Simulation evaluation of alternative models would also be possible. The objectives and necessary activities are outlined and include: (1) collection of personal data, (2) identification cf subgrcups, and (3) identification of sources of funding. (Author/KJ)

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TOTAL GUIDANCE INFORMATION SUPPORT SYSTEM

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THE BARTLESVILLE SYSTEM

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CLINICAL TEACHING WITH COMPUTER AIDS

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CLINICAL TEACHING WITH COMPUTER AIDS

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The educational development of an individual is a longitudinal personalized experience. Some people are endowed with advantages, both hereditary and environmentally, which allows them to make full use of the formal training provided by society. Others, for one reason or another, become "high-risk" students with a limited possibility of attaining an education. Some of the recognized factors influencing this condition are: Mental deficiency, emotional disturbance, cultural deprivation, sensory-motor difficulty, social deviation, speech defects, visual difficulty, auditory limitations, physical handicaps, and other easily recognized minority group membership characteristics. Almost all students at some period of time are appropriately identified in the "high-risk" category. For example, children during the puberty stage of development acquire many transitional problems.

The concepts developed here are proposed as ideals. The writer recognizes the difficulties of implementing truly innovative educational activities, especially in opposition to the tremendous resistance that has been generated by the established processes. However,

various means of implementation of desirable concepts are sought by the population only when they are aware of them. Therefore, when such idealized programs are proposed it is with the hope of stimulation of thought and the gradual change toward a more effective educational effort.

Psychologists, educators, and the general public have been concerned with the learning difficulties experienced by high-risk students. These students' problems are eventually reflected by the high incidence of dropping out of society-sponsored educational settings. The professional behavioral scientist is also aware of the tremendous social burden that these high-risk students create. In 1958, Daniel Schreiber, of the United States Department of Health, Education, and Welfare, stated that, "of the 4.2 million children who were enrolled in the fifth grade eight years ago, 700,000 will not be graduating from high school this year."

In order to alleviate this situation, one of the nation's largest problems, the local, state, and federal governments have sponsored programs aided at prevention, early detection, and remediation at the various age levels of high-risk students. Head Start, Job Corps, Indian Rehabilitation Programs, etc. are examples of the programs that have met with varying degrees of success. The success of these projects largely depend upon individual effort of the personnel and staff directly responsible for the program. Follow-through support activities are limited to the more immediate requirements of the students. Therefore, the student must acquire a high degree of personalized

stimulation for self motivation; otherwise, the high-risk factors rapidly reassert themselves as the prime factor influencing the person's behavior. A more effective method of aiding high-risk students may be approached by total community involvement and through the use of operational evaluation and instruction by computerized assistance. This approach could more readily provide for the utilization of a maximum number of proven learning principles and especially the objectivism of information relating to the individual on a continuous basis.

The most important factor to remember in utilization of computers for any purpose is that the limitation of the output is determined by the data put into the machine. This concept quickly created the truism that "if you put garbage in a computer, you get garbage out", and this must always be kept in mind when using results of computer manipulations. The complex manipulation of data and the highly sophisticated results derived are not magically more reliable than the data that are fed into the machine. The advantages of a systems approach are the rapid and objective manipulation of a large volume of data, various comparisons, and the results of desired data combinations, probability predictions, and identification of alternate choices that are available. Also, information contained in entire libraries may be stored and drawn upon when necessary by computers. Therefore, this aid to education can be a most important resource for the professionals working with students.

Computers and their capabilities have been "on the market" for some time. Much of their use by educators has been to store and

retrieve student information usually found in cumulative records, plus helping in the bookkeeping chores of the institution. Computers have also been used to engage in "what if" types of endeavors. The probable outcome of various combinations of information in a "game" approach has had increased potential as a self help process which provides the student with alternatives in making academic and vocational choices.

High-risk students are faced primarily with the chore of gaining a required part of the desirable attributes related to more acceptable groups. This activity places a premium upon making decisions either socially or vocationally that correspond to the generalization of "success". In order to look more closely at the procedure used in making vocational decisions one general theoretical framework will be examined.

Many theoretical frameworks have been outlined for vocational decision making which attempt to explain how effective choices are made. A most important factor in the educational program of handicapped children is the environmental influences and the pressure these influences exert upon the life style of the individual. However, any theoretical framework that is to provide for individual differences must include the affect that the environment has on the individual, how the individual student adjusts to the dictates of the environment, and what influences the individual has on his environment.

The developmental occupational environments and individual orientations listed by John Holland (5) are:

1. The motoric environment
2. The intellectual environment
3. The supportive environment
4. The conforming environment
5. The persuasive environment
6. The esthetic environment

This developmental list of environments forms a theoretical hierarchy for each person and represents a life-style representing the preferred method of reacting to daily problems. The person's typical responses start at the most concrete level and progress toward the most abstract level of operation. The interaction between levels can be studied in the outline above.

However, a more logical approach to the study of interests is through a conceptual outline or vocational development. The conceptual framework or vocational involvement, as a development process, attempts to answer the interaction question directly. Blau, Gustad, Jessor, Parnes, and Wilcock have presented a well designed conceptual approach. A summary of their conclusion as presented in the Continuation Proposal, Title III, E.S.E.A., U.S.O.E., Project 5685 follows:

1. The conceptual scheme presented is not a substitute for a theory of occupational choice and selection, but merely a framework for systematic research which, in due course, will provide the material needed for constructing such a theory.

2. The social structure affects occupational choice in two analytically distinct respects; as the matrix of social experiences which channel the personality development of potential workers, and as the conditions of occupational opportunity which limit the realization of their choices.

3. Although four characteristics of individuals and four of occupations have been specified as determinants of occupational entry, the two crucial questions are: what developments in the lives of potential workers and in the history of the socio-economic organization determine these characteristics, and what are the processes of choice and selection through which they affect occupational entry?

4. Occupational choice is conceived as a process of compromise between preferences for and expectations of being able to get into various occupations. This compromise is continually modified, since the experiences of individuals in the course of searching for suitable careers affect their expectations and often also their preferences.

5. Lest the complicated and extended developmental processes that culminates in occupational choice be oversimplified, it is necessary to consider it as a series of interrelated decisions rather than as a single choice. The repeated application of the suggested framework for analysis at crucial turning points in the lives of individuals make it possible to trace this development and to show how earlier decisions, by narrowing the range of future possibilities, influence the final choices of occupations.

6. The analysis of the processes by which individuals choose one occupation in preference to others must be complemented by an analysis of the processes by which some individuals, and not others, are selected for a certain occupation. To be sure, it is legitimate scientific procedure to treat the actions of selectors as given conditions in the investigation of occupational choice, and it is equally legitimate to treat the actions of choosers as given conditions in the investigation of occupational selection, but only the combination of both procedures makes it possible to explain why people end up in different occupations.

The developmental process and the conceptual approach to vocational choices present a relatively comprehensive explanation of the process of decision making. In order to completely understand the individual, his environment, and how the two interact, one more important factor should be considered. That factor concerns how the individual affects his various environments.

Each individual's influence upon his immediate environment can be measured by the achieved results. Alfred Adler's (1) theory of personality development advances the possibility that man makes his own personality. Adler proposed that man constructs his individual personality out of the raw materials of hereditary and environment available to him.

> "Heredity only endows him with certain abilities. Environment only gives him certain impressions. These abilities and impressions, and the manner in which he 'experiences' them--that is to say, the interpretation he makes of these experiences--are the bricks which he uses in his own 'creative' way in building up his attitude toward life. It is his individual way of using these bricks, or in other words his attitude toward life, which determines this relationship to the outside world."

The recording of the (1) developmental environments, (2) interaction of environments and individuals, and (3) affect that each person's personality has upon the decision making process is a preliminary task. In order to be of any use the relevant factors related to the decisions should, of course, be recorded consistently. Pragmatism is always relevant to educational programs, and realism is particularly appropriate in regard to any activity involving high-risk students. The exceptional individual in today's society must live in a hard

world of realism in order to survive in the competitive activities of society.

The ability to quantify any information is highly desirable from a deterministic point of view. Any information that can be objected can then be measured and compared to other hard data. Emotional factors have always resisted objectification. One of the major difficulties has been the emotional make up of the scientist attempting the objectification. This difficulty may be removed somewhat by the use of non-feeling machinery and keeping the input of data as consistent as possible. This possibility of obtaining an objectified picture of the individual's emotional environments and how he reacts to and with these environments are possible by computer. The capability for any individual to know all of the emotional forces that are involved in his life would be of tremendous benefit. For the high-risk individual it may be necessary for basic independent survival.

In order to provide for on-going decision making aids for all students, including the high-risk individuals, a comprehensive framework must be followed. The framework for decision making must provide for the continual process of reviewing, revising, or changing these decisions in an emotionally satisfying manner for the students.

Statement of Objectives

The maximum goal of public education endeavors is to provide individualized education that attains the ultimate personalized objectives for all children, and which also contributes to the well being

of society. The uniqueness of the individual student will then be maximized and provided for a cosmopolitan level of awareness. The educational directors can perpetually evaluate the probability of all activities in the programs in relation to the stated objectives by the usual simulation methods.

Objective Evaluation

The evaluation of students in order to provide individualized services is tremendously influenced by subjective elements or emotional attitudes. The attitudes of the community related to a particular group determines the educational opportunities provided for members of this group. This dynamic of human behavior results in ineffective educational experiences for high-risk students, and added emotional turmoil for the high-risk population. Students react to this educational practice by accusations of a double standard. Usually the adults verbalize their concern of being misunderstood or that a generation gap has developed.

Students are evaluated and provided educational opportunities in relation to the community attitudes toward them as the group with which they are identified. Therefore, these attitudes should be identified and exposed so that more effective educational planning can result; and, in order that the educational community is honest with the public which it is supposed to serve. This practice will eliminate double standards; misunderstandings will not occur; generation gaps will be passe; and the youth can communicate effectively with people in other generations.

The combination of ability, content proficiency, and emotional reaction of the educational complex in relation with a student may only be approached by the capabilities of advanced computers, expertly programmed.

Various Sub-Groups

The internalized attitudes and reactions toward various sub-groups by the faculty, administration, general public, and the student body constitutes the acceptance or rejection of the individual student. This total community attitude regarding the children from high-risk groups, when realistically recorded, will identify the psychological environment surrounding and involving the student. This data will be intelligently used to develop a relevant educational program for all students. It will also allow the members of the community to seek personal emotional modification with their intellectual commitments, when there is an existing difference. This conscious decision making by an enlightened public may be the most desirable community mental health activity.

The application of objective methods and mechanical programming will not automatically eliminate double standards in school and community behavior, nor will it necessarily curtail the emotional elements which may control the local community life. A major goal in this proposal is to simply identify and expose the subjective or emotional character of the educational program. This will provide a more consistent approach to both evaluation and teaching of high-risk students.

The educator, psychologist, and local public will be able to compare the differences in their verbalized intentions in contrast to how they actually perform.

Simulation Evaluation

The evaluation of various programs by alternative models is possible by simulation. The resulting probability of different educational approaches would be determined by the student using data already provided to the computer. This avenue could be explored by the student or counselor on a perpetual basis with the added advantage of simultaneous comparisons of the probabilities of alternate choices which may be considerations by the student.

The achievement of this total program for a school community may be approached through the attainment of the following:

1. Implementing the penetration into social attitudes that influence high-risk subgroups of the population.
2. Establishing objective screening criterion for high-risk individuals and subgroups.
3. Establishing liason with relevant social agencies which may provide services for high-risk individuals.
4. Establishing a method for information sharing and recording of information in the CAC-CAI program.
5. Establishing clinical teaching aids for high-risk individuals.
6. Providing simulation of alternative educational

choices for determination of probable vocational attainment.

7. Utilizing representative attitudes of influencial subgroups in the community toward high-risk individuals.
8. Establishing cost effectiveness of present activities.

Penetration of social attitudes that influence high-risk subgroups of the population is to be accomplished on more than the superficial level. High-risk groups are "thought of" in a different way than the rest of the population by various elements of the public. The high-risk group will frequently accept this evaluation and their attitude about themselves becomes similar to that of the general population. The example of the "conditioned dependency" of the American Indian is a frequent reminder of the power of "suggestive persuasion" by public attitude.

Objective screening criterion for high-risk individuals and subgroups should be established. Obvious membership in a high-risk group would be easily identifiable. This would simply mean the cataloging of the community reaction to such factors as negative attitudes toward members of a minority race, income level, or individuals with discernable physical, mental, or emotional deficiency, and/or any other characteristic which would easily identify the person. Screening criterion could also include cut-off scores on various diagnostic instruments.

Standardized tests of intelligence, personality, achievement, and physical exams of eyesight, hearing, dexterity, etc. may be

included. Minimal academic achievements such as grades, attendance, classroom performance, etc. may be also used as indication of high-risk membership.

There are many social agencies which provide services for the disadvantaged. Some of these well known services include: social security, welfare, vocational rehabilitation, homebound instruction, community guidance centers, etc. These agencies and others may provide directly and indirectly many services to the same individual who has educational difficulties. The awareness of social agencies and services available in a community: (1) provides for the most effective use of those services, (2) eliminates unnecessary duplication of services, (3) provides for a better understanding of the total investment the community makes in high-risk groups, and (4) provides a method of ascertaining the philosophy of the population as indicated by the direction of the influence of publicly supported programs.

The method of storage and retrieval of data should be carefully considered. First, all of those agencies concerned with the individual should find it desirable to share their information. This means that information available from the computer relating to a person would be more comprehensive than any one agency's contribution of data.

Secondly, the total information should be available to the high-risk individual and/or group. The individual or group has the highest moral and legal right to the data which describes their own personal attributes. Keeping the individual's right to information concerning

himself at the top of the priority is of utmost importance in order to retain any degree of personal freedom and human dignity.

Clinical teaching aids are used on an individualized basis. Each student will represent highly personalized differences of special needs which must be satisfied in order that he be provided with optimal educational experiences. The acquisition of educational materials will be guided by unique student needs. However, for the most part the prescriptive teaching of the individual student will be concerned mainly with the programming of available materials and services for the maximum educational experience of the individual. Therefore, the usual equipment such as overhead projectors, tape recorders, bulletin boards, sight saving materials, amplification capabilities, and content materials of a current vintage should be readily available to the faculty.

The attitude of the community toward the high-risk population will influence the opportunities that are available to the high-risk individual. Each community is requested by the influential subgroups and the composit of their attitudes. Therefore, the recognition of limitations or the possibility of the community changing some undesirable aspects is made more possible by the awareness of the emotional reaction of the community toward the high-risk subgroups.

Outline of Activities to Attain Objectives

In order to accomplish these objectives, elementary steps must first be activated. The identification of the eight groups: school faculty, school administration, student body, industrial management,

merchants, labor, housewives, and medical society, must be initiated. The method of selecting representatives from each group should be one that is not disruptive to the community. The representatives will be polled in an appropriate manner in order that they truly present the attitude of the group from which they come. Appointment of a five to seven man educational advisement group for continual supervision to develop and guide the data gathering process is necessary. An organizational chart of the present school system, including the role of ancillary services, should be diagrammed for flow-chart evaluations of the several pertinent operations and other relevant activities initiated that are related to the equipment, information, and utilization to obtain the outlined objectives.

The proposed approach for data gathering and operational research include the initial steps:

1. Identify the extent to which the high-risk disorders affect the total population; which can be further analyzed in catagories related to incidence, severity, location, and the services provided.
2. Collect the individual personal data to each student.
3. Identify the subgroups who provide direct service for students.
4. Establish detection, processing, and reporting of academic and social achievement of each student.
5. Identification of representatives of the school faculty,

school administration, student body, industrial management, merchants, labor, housewives, and medical society.

6. Survey the present evaluation and remedial education activities of the school system.
7. Establish the characteristics of decision and action points which control student services.
8. Construct a mathematical model which represents the day-to-day system to present educational services.
9. Identify the sources of funding for educational services, especially as related to the high-risk population.
10. Establish a method of recording the value structure related to high-risk individuals from the eight groups and a composit score.

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